PROSPECTUS/
HANDBOOK OF INFORMATION
2026-2027

for

PROGRAMMES WITH ENTRANCE TEST

- **B.Pharmacy**
- **B.Com. (Honors)/ M.Com. (Honors School-FYIC)/ FYIP MBA (FM/AM)**
- **BCA (Honors with Research) on Campus Programme**
- **MPT**
- **LL.M. (Department of Law/ Punjab School of Law /Army institute of Law, Mohali/ Department of Law, Punjabi University Regional Centre, Bathinda**

PUNJABI UNIVERSITY, PATIALA

(Established under Punjab Act No. 35 of 1961)

NAAC 'A+' GRADE ACCREDITATION
AND
LARGEST STATE UNIVERSITY OF PUNJAB
64TH RANK NIRF UNIVERSITY RANKINGS, 2020
18TH RANK: EW INDIA GOVERNMENT UNIVERSITY RANKING 2020-21

Visit at www.pupadmissions.ac.in
(Contact for Admission Related Enquiry Only)
0175-513-6522, 513-6390 (During Office Hours)

UPDATED ON: 08.07.2026

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Message from the Vice Chancellor

Dear Students and Parents,

It gives me great pleasure to welcome you to Punjabi University, Patiala, an institution founded in 1962 with a noble vision to promote Punjabi language, literature and culture. Over the years, we have grown into a vibrant center of learning and research, proudly bending academic excellence with deep cultural roots.

Our achievements, including an A plus grade from NAAC, a place among the top 100 State Universities, a position within the top 200 in the NIRF rankings, and the 47th rank among State Public Universities in the Outlook ICARE Rankings 2025, reflect the dedication of our faculty, staff, students, and alumni. These recognitions inspire us to continuously raise our standards and expand our horizons.

At Punjabi University, education is not merely about earning a degree; it is about discovering potential and shaping character. Our curricula aligned with the National Education Policy, our committed faculty, and our supportive academic environment encourage students to think critically, explore creatively, and grow confidently. We strive to provide quality and affordable education that prepares our students for both professional success and personal fulfilment.

Beyond the classroom, our campus life is rich with opportunities in sports, culture, and co-curricular activities. We believe these experiences build resilience, leadership, teamwork, and a sense of belonging. Here, students are encouraged to pursue their passions, celebrate diversity, and form lifelong friendships.

As educators, we carry a deep responsibility not only to impart knowledge, but to nurture responsible, compassionate, and socially conscious individuals. We emphasize ethical values, civic responsibility, environmental awareness, and respect for others, so that our graduates contribute meaningfully to society.

I warmly invite you to become part of the Punjabi University family. Together, let us build a future where tradition guides us, innovation drives us, and education empowers every student to lead with knowledge, integrity, and heart.

Your journey begins here.

Dr. Jagdeep Singh
Vice Chancellor
Punjabi University, Patiala

Notwithstanding the information provided in this Prospectus/ Handbook of Information, the Vice-Chancellor will have the right, in consultation with the Standing Committee of Academic Council, to delete, change or make additions to any of the provisions contained in it.

If there is any dispute/ambiguity, the decision of the Vice-Chancellor will prevail.

All disputes arising from this document or connected therewith are subject to the territorial jurisdiction of Courts situated at Patiala only and to the exclusion of all other Courts.

Important Note: Ragging in any form is strictly prohibited. As per order of the Hon'ble Court' "if any incident of ragging comes to the notice of authority, the concerned student shall be given liberty to explain and if explanation is not satisfactory, the authority would expel her/him from the institution".

As per Punjab Government Notification No. 3/7/2010 training (3)/1007 Chandigarh dated 10-03-2010

* ***The candidates seeking admission to any Programme at Punjabi University, Patiala are not required to submit any type of affidavit except in case of Single Girl Child (unless it is legally required), self-declaration can be furnished.***
* ***In place of attested copies of various certificates, candidate can submit self attested copies of various documents along with admission form.***

Co- ordinator
Dr. Gulshan Bansal
Professor
Pharmaceutical Sciences & Drug Research

Co-Coordinator	Co-Coordinator	Co-Coordinator
Dr. Kawal jeet Singh	Dr. Rakesh Kumar	Dr. Gurpreet Singh Josan
Director	Professor	Professor
University Computer Centre	Mathematics	Computer Science

Note: Information in the Prospectus/ Handbook is subject to change/ modification as per the rules/ guidelines received time to time from the competent bodies/ authorities.
Candidates are advised to check the website "www.pupadmissions.ac.in" regularly for the updates.

Published by Prof. Devinderpal Singh Sidhu, Registrar, Punjabi University, Patiala

ਯੂਨੀਵਰਸਿਟੀ ਧੁਨੀ

ਆਸਾ ਮਹਲਾ ੧ ਚਉਪਦੇ ॥

ਵਿਦਿਆ ਵੀਚਾਰੀ ਤਾਂ ਪਰਉਪਕਾਰੀ ॥
ਜਾਂ ਪੰਚ ਰਾਸੀ ਤਾਂ ਤੀਰਥ ਵਾਸੀ ॥੧॥
ਘੁੰਘਰੂ ਵਾਜੈ ਜੇ ਮਨੁ ਲਾਗੈ ॥
ਤਉ ਜਮੁ ਕਹਾ ਕਰੇ ਮੋ ਸਿਉ ਆਗੈ ॥੧॥ ਰਹਾਉ ॥
ਆਸ ਨਿਰਾਸੀ ਤਉ ਸੰਨਿਆਸੀ ॥
ਜਾਂ ਜਤੁ ਜੋਗੀ ਤਾਂ ਕਾਇਆ ਭੋਗੀ ॥੨॥
ਦਇਆ ਦਿਗੰਬਰੁ ਦੇਹ ਬੀਚਾਰੀ ॥
ਆਪਿ ਮਰੈ ਅਵਰਾ ਨਹ ਮਾਰੀ ॥੩॥
ਏਕੁ ਤੂ ਹੋਰਿ ਵੇਸ ਬਹੁਤੇਰੇ ॥
ਨਾਨਕੁ ਜਾਣੈ ਚੋਜ ਨ ਤੇਰੇ ॥੪॥ ੨੫॥

(ਸ੍ਰੀ ਗੁਰੂ ਗ੍ਰੰਥ ਸਾਹਿਬ, ਪੰਨਾ ੩੫੬)

English Translation of University Anthem

True learning *induces in the mind* service of mankind.
One subduing the five passions has truly taken abode at holy bathing- spots. (1)
The mind attuned *to the Infinite* is the true singing of ankle- bells in *ritual dances*.
With this how dare Yama intimidate me in the hereafter? (Pause 1)
One renouncing desire is the true Sannyasi.
From continence comes true joy of living in the body. (2)
One contemplating *to subdue* the flesh is the truly Compassionate Jain ascetic.
Such a one subduing the self, forbears harming others. (3)
Thou Lord, art one and Sole.
Many Thy forms-
The manifold play beyond Nanak's comprehension.(4)(25)

(Translated by: Gurbachan Singh Talib)

HEAD/ PRINCIPAL OF THE DEPARTMENTS

Department	Heads/ Principal	Telephone Numbers	Email_ID
Commerce	Prof. Rajeev Kansal	513-6208	headcommerce@pbi.ac.in
Computer Science	Prof. Gagandeep	513-6313	dcs@pbi.ac.in
Pharmaceutical Sciences & Drug Research	Prof. Yogita Bansal	513-6254	head_pharmacy@pbi.ac.in
University School of Applied Management	Prof. Nidhi Walia	513-6330	head_sam@pbi.ac.in
Physiotherapy	Dr. Sandeep Singh	513-6434	headphysiotherapypup@pbi.ac.in
Law	Prof. Bhupinder Singh Virk	513-6290	head_law@pbi.ac.in
Punjab School of Law	Dr. Yashwinder Kaur	513-6297	headpslpup@pbi.ac.in
Army Institute of Law, Mohali	Dr. Tejinder Kaur	0172-5095335	info@ail.ac.in
Department of Law, Punjabi University Regional Centre, Bathinda	Dr. Anupam Ahluwalia	98552-18512	rc_law@pbi.ac.in

ONLINE APPLICATION FEE

The application fee (without late fee) for different types of Programmes is as followed:

Entrance Test Fee	**Rs. 1700/- (Rs. 1400/- for SC/ST)**

***For application submitted after last date, late fee will be charged as per schedule.**

For more Enquiry please contact

CENTRALIZED ADMISSION CELL

Near Happiness Cafe, Opp. Hostel No. 4,
Punjabi University, Patiala - 147 002, Punjab, India
Phone: 0175-5136522, 5136390
E-mail ID- admisssions.info@pbi.ac.in

Note: Telephone Number of the University Exchange: **(0175) 513-6598 and 513-6599.** Any officer/Branch/Department of the University can be reached through these numbers.

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GENERAL GUIDELINES FOR ENTRANCE TEST

- The candidate is responsible to check its eligibility for admission in the programme of its interest.
- Candidates must check the admission schedule and important dates on website https://pupadmissions.ac.in/ regularly time to time.
- For each Entrance Test, a separate application form must be submitted online along with the payment of the respective fee.
- In case, any candidate is found to have furnished false information/certificate or is found to have withheld/concealed information in his/her Application Form, he/she shall be debarred from appearing in entrance test/admission to the Programme.
- Candidates who have appeared in the qualifying examination (10+2) and, his/her result is still awaited can submit their application form online in time. He/she has to update his/her online Application Form using EDIT option Whenever he/she gets the result till the date given by Centralized Admission Cell. It is in the responsibility of the applicants to update the result status in the entrance test application form.
- Candidates are advised, in their own interest, to submit online application well before the last date of admission and not to wait till the last date to avoid any rush/server load on the website on the last days. The university will not be responsible for the candidates not being able to submit their applications within the last date on account to the aforesaid reasons or for any other reason beyond the control of the university.
- Tie-Breaker rules in case candidates obtain the same marks in entrance test:
  a) Candidate with higher marks in the qualifying examination as per the eligibility criteria shall be given preference.
  b) In case the tie remains unresolved, the candidate older in age shall be given preference.
- The **Entrance Test result** will be declared on wesbite https://pupadmissions.ac.in/ as per the schedule.

  Note: Candidates are advised to keep in touch with the official website of university time to time for any change in schedule or other information.

- For detailed information regarding the **Reservation Policy, Refund Policy, Admission Rules, Scholarships**, and other related matters, please refer to the **General Prospectus / Handbook of Information 2026–27** available at **https://pupadmissions.ac.in/**

SCHEDULE FOR UG ENTRANCE TEST			
Event	**B.C.A. (Honors with Research) – On Campus (3+1 Scheme)**	**B.Com. (Honors) (3+1 Scheme), M.Com. (Honors School-FYIP), FYIP MBA (FM/AM)**	**Bachelor of Pharmacy**
Online Registration (Without Late Fee)	**04.05.2026 (5:00 PM)**	**04.05.2026 (5:00 PM)**	**04.05.2026 (5:00 PM)**
Online Registration (With Late Fee ₹2000/-)	**08.05.2026 (5:00 PM)**	**08.05.2026 (5:00 PM)**	**08.05.2026 (5:00 PM)**
Last Date for Filling/Editing Form	**11.05.2026 (5:00 PM)**	**11.05.2026 (5:00 PM)**	**11.05.2026 (5:00 PM)**
Download Admit Card	**13.05.2026 (5:00 PM)**	**13.05.2026 (5:00 PM)**	**13.05.2026 (5:00 PM)**
Date of Entrance Test	**17.05.2026 (02:00 PM – 04:0 PM)**	**17.05.2026 (10:00 AM – 12:00 Noon)**	**16.05.2026 (10:00 AM – 12:00 Noon)**
Answer Key Upload	**17.05.2026 (7:00 PM)**	**17.05.2026 (7:00 PM)**	**16.05.2026 (7:00 PM)**
Submission of Objections by Candidates	**19.05.2026 (7:00 PM)**	**19.05.2026 (7:00 PM)**	**18.05.2026 (7:00 PM)**
Declaration of Result (Tentative)	**27.05.2026 (5:00 PM)**	**27.05.2026 (5:00 PM)**	**27.05.2026 (5:00 PM)**
Interview Date#	**1st & 2nd June 2026 (9:00 AM onwards)**	**1st & 2nd June 2026 (9:00 AM onwards)**	**1st & 2nd June 2026 (9:00 AM onwards)**
Venue of Interview/Counselling	**Concerned Department**	**Concerned Department**	**Concerned Department**

Candidates MUST carry their all certificates and documents in ORIGINAL at the time of Interview/ Counselling/ Document Verification. Candidates are also advised to visit www.pupadmissions.ac.in regularly for any update in the admission schedule.

IMPORTANT NOTE: - Candidates seeking admission to other programmes offered by Punjabi University, Patiala are required to visit the official website www.pupadmissions.ac.in and fill the respective Application-cum-Admission Form in accordance with the prescribed schedule.

SCHEDULE FOR PG ENTRANCE TEST		
Event	**MPT**	**LL.M.**
Online Registration (Without Late Fee)	**10.06.2026 (5.00 pm)**	**27.07.2026 (5.00 pm)**
Online Registration (With Late Fee ₹2000/-)	**17.06.2026 (5.00 pm)**	**05.08.2026 (5.00 pm)**
Last Date for Filling/Editing Form	**18.06.2026 (5.00 pm)**	**05.08.2026 (5.00 pm)**
Download Admit Card	**19.06.2026 (5.00 pm)**	**06.08.2026 (5.00 pm)**
Date of Entrance Test	**21.06.2026 (10:00 AM – 12:00 Noon)**	**09.08.2026 (10:00 AM – 12:00 Noon)**
Answer Key Upload	**21.06.2026 (5.00 pm)**	**09.08.2026 (5.00 pm)**
Submission of Objections by Candidates	**23.06.2026 (5.00 pm)**	**11.08.2026 (5.00 pm)**
Declaration of Result (Tentative)	**08.07.2026 (5.00 pm)**	**21.08.2026 (5.00 pm)**
Interview Date#	**13.07.2026 & 14.07.2026 (9.00 am onwards)**	**25.08.2026 & 26.08.2026 (9.00 am onwards)**
Venue of Interview/Counselling	**Concerned Department**	**Concerned Department**

Candidates MUST carry their all certificates and documents in ORIGINAL at the time of Interview/ Counselling/ Document Verification. Candidates are also advised to visit www.pupadmissions.ac.in regularly for any update in the admission schedule.

IMPORTANT NOTE: - Candidates seeking admission to other programmes offered by Punjabi University, Patiala are required to visit the official website www.pupadmissions.ac.in **and fill the respective Application-cum-Admission Form in accordance with the prescribed schedule.**

BACHELOR OF PHARMACY (4 YEARS) (PCI APPROVED)

Online Form No. 36

Eligibility:

10+2 (with 50% marks in the four compulsory subjects i.e., Chemistry, Physics, Biology or Mathematics and English taken together or equivalent examination) from PSEB/CBSE/ICSE or any other board or examination recognised as equivalent there to by the Punjabi University, Patiala. **The candidate shall complete the age of 17 years on or before 31st December of the year of admission.**

The Admission will be on the basis of marks obtained in the Entrance Test.

Student Intake: 60

INSTRUCTIONS FOR CANDIDATES APPEARING IN B.PHARMACY ENTRANCE TEST

1. The question paper shall consist of **100 Multiple-Choice Questions (MCQs).**
2. The question paper distribution will be as follows:

Subject	No. of Questions
Physics	30
Chemistry	30
Mathematics or Biology	40

3. Each question will have **four options (A, B, C, D)** with only one correct answer. **All candidates must attempt Physics and Chemistry**. Candidates must attempt **either Biology OR Mathematics according to their 10+2 qualifying stream (Medical or Non-Medical).** The candidates, who have studied both mathematics and biology in 10+2 can attempt only any one of the two subjects depending on their choice and will.
4. **Only one of the two subjects (Biology or Mathematics) will be included for evaluation.**
5. There will no negative marking.
6. Duration of the test will be **2 hours. No extra time will be provided.**
7. Qualifying marks in the Entrance Test are **10% for SC/ST/Persons with Disability (PWD) candidates and 15% for General and all other categories.**
8. **Admit Cards** for appearing in the Entrance Test will be available for download on https://pupadmissions.ac.in/ as per schedule. In case a candidate is not able to download Admit Card, kindly contact Centralized Admission Cell.
9. Candidates must check the **admission schedule and important dates on https://pupadmissions.ac.in/** regularly.
10. The candidates are strictly advised to **check the Eligibility Criteria#** mentioned in the Prospectus/ Handbook of Information **#(the Programme in which he/she is seeking admission)** before filling form.
11. Candidates must bring their **Admit Card to the Test Centre along with valid ID Proof.** Without Admit Card, candidates are not allowed to appear in the Entrance Test.
12. **Admission** will be offered on the basis of **merit in entrance test** provided candidate fulfils the basic eligibility criteria.
13. The Entrance Test result will be declared on https://pupadmissions.ac.in/

SYLLABUS FOR ENTRANCE TEST-2026

B.PHARMACY

MATHEMATICS

UNIT 1: SETS, RELATIONS AND FUNCTIONS: Sets and their representation; Union, intersection and complement of sets and their algebraic properties; Power set; Relations, type of relations, equivalence relations, functions; one-one, into and onto functions, the composition of functions.

UNIT 2: COMPLEX NUMBERS AND QUADRATIC EQUATIONS: Complex numbers as ordered pairs of reals, Representation of complex numbers in the form a + ib and their representation in a plane, Argand diagram, algebra of complex numbers, modulus and argument (or amplitude) of a complex number, Quadratic equations in real and complex number systems and their solutions; Relations between roots and coefficients, nature of roots, the formation of quadratic equations with given roots.

UNIT3: MATRICES AND DETERMINANTS: Matrices, algebra of matrices, type of matrices, determinants and matrices of order two and three, evaluation of determinants, area of triangles using determinants; Adjoint and inverse of a square matrix; Test of consistency and solution of simultaneous linear equations in two or three variables using matrices.

UNIT 4: PERMUTATIONS AND COMBINATIONS: The fundamental principle of counting, permutations and combinations; Meaning of P(n, r) and C(n, r). Simple applications.

UNIT 5: BINOMIAL THEOREM AND ITS SIMPLE APPLICATIONS: Binomial theorem for a positive integral index, general term and middle term and simple applications.

UNIT 6: SEQUENCE AND SERIES: Arithmetic and Geometric progressions, insertion of arithmetic, geometric means between two given numbers, Relation between A.M and G.M.

UNIT 7: LIMIT, CONTINUITY AND DIFFERENTIABILITY: Real–valued functions, algebra of functions; polynomial, rational, trigonometric, logarithmic and exponential functions; inverse functions. Graphs of simple functions. Limits, continuity and differentiability. Differentiation of the sum, difference, product and quotient of two functions. Differentiation of trigonometric, inverse trigonometric, logarithmic, exponential, composite and implicit functions; derivatives of order upto two, Applications of derivatives: Rate of change of quantities, monotonic-Increasing and decreasing functions, Maxima and minima of functions of one variable.

UNIT 8: INTEGRAL CALCULAS: Integral as an anti-derivative, Fundamental integrals involving algebraic, trigonometric, exponential and logarithmic functions. Integration by substitution, by parts and by partial fractions. Integration using trigonometric identities. Evaluation of simple integrals. The fundamental theorem of calculus, properties of definite integrals. Evaluation of definite integrals, determining areas of the regions bounded by simple curves by simple curves in standard forms.

UNIT 9: DIFFERENTIAL EQUATIONS: Ordinary differential equations, their order and degree, the solution of differential equation by the method of separation of variables, solution of a homogeneous and linear differential equation.

UNIT 10: CO-ORDINATE GEOMETRY: Cartesian system of rectangular coordinates in a plane, distance formula, sections formula, locus and its equation, the slope of a line, parallel and perpendicular lines, intercepts of a line on the co-ordinate axis. Straight line: Various forms of equations of a line, intersection of lines, angles between two lines, conditions for concurrence of three lines, the distance of a point form a line, co-ordinate of the centroid, orthocentre and circumcentre of a triangle. Circle, conic sections: A standard form of equations of a circle, the general form of the equation of a circle, its radius and centre, equation of a circle when the endpoints of a diameter are given, points of intersection of a line and a circle with the centre at the origin and sections of conics, equations of conic sections (parabola, ellipse and hyperbola) in standard forms.

UNIT 11: THREE DIMENSIONAL GEOMETRY: Coordinates of a point in space, the distance between two points, section formula, direction ratios and direction cosines and the angle between two intersecting lines. Equation of a line; Skew lines, the shortest distance between them and its equation.

UNIT 12: VECTOR ALGEBRA: Vectors and scalars, the addition of vectors, components of a vector in two dimensions and three-dimensional spaces, scalar and vector products.

UNIT 13: STATISTICS AND PROBABILITY: Measures of dispersion; calculation of mean, median, mode of grouped and ungrouped data, calculation of standard deviation, variance and mean deviation for grouped and ungrouped data. Probability: Probability of an event, addition and multiplication theorems of probability, Baye's theorem, probability distribution of a random variable.

UNIT 14: TRIGONOMETRY: Trigonometrical identities and trigonometrical functions, inverse trigonometrical functions their properties

CHEMISTRY

UNIT I: SOME BASIC CONCEPTS IN CHEMISTRY Matter and its nature, Dalton's atomic theory: Concept of atom, molecule, element, and compound: Laws of chemical combination; Atomic and molecular masses, mole concept, molar mass, percentage composition, empirical and molecular formulae: Chemical equations and stoichiometry.

UNIT 2: ATOMIC STRUCTURE Nature of electromagnetic radiation, photoelectric effect; Spectrum of the hydrogen atom. Bohr model of a hydrogen atom - its postulates, derivation of the relations for the energy of the electron and radii of the different orbits, limitations of Bohr's model; Dual nature of matter, de Broglie's relationship. Heisenberg uncertainty principle. Elementary ideas of quantum mechanics, quantum mechanics, the quantum mechanical model of the atom, its important features. Concept of atomic orbitals as one-electron wave functions: Variation of Ψ and Ψ2 with r for 1s and 2s orbitals; various quantum numbers (principal, angular momentum, and magnetic quantum numbers) and their significance; shapes of s, p, and d - orbitals, electron spin and spin quantum number: Rules for filling electrons in orbitals – Aufbau principle. Pauli's exclusion principle and Hund's rule, electronic configuration of elements, extra stability of half-filled and completely filled orbitals.

UNIT 3: CHEMICAL BONDING AND MOLECULAR STRUCTURE Kossel - Lewis approach to chemical bond formation, the concept of ionic and covalent bonds. Ionic Bonding: Formation of ionic bonds, factors affecting the formation of ionic bonds; calculation of lattice enthalpy. Covalent Bonding: Concept of electronegativity. Fajan's rule, dipole moment: Valence Shell Electron Pair Repulsion (VSEPR) theory and shapes of simple molecules. Quantum mechanical approach to covalent bonding: Valence bond theory - its important features, the concept of hybridization involving s, p, and d orbitals; Resonance. Molecular Orbital Theory - Its important features. LCAOs, types of molecular orbitals (bonding, antibonding), sigma and pi-bonds, molecular orbital electronic configurations of homonuclear diatomic molecules, the concept of bond order, bond length, and bond energy. Elementary idea of metallic bonding. Hydrogen bonding and its applications.

UNIT 4: CHEMICAL THERMODYNAMICS Fundamentals of thermodynamics: System and surroundings, extensive and intensive properties, state functions, types of processes. The first law of thermodynamics - Concept of work, heat internal energy and enthalpy, heat capacity, molar heat capacity; Hess's law of constant heat summation; Enthalpies of bond 7 dissociation, combustion, formation, atomization, sublimation, phase transition, hydration, ionization, and solution. The second law of thermodynamics - Spontaneity of processes; ΔS of the universe and ΔG of the system as criteria for spontaneity. ΔG° (Standard Gibbs energy change) and equilibrium constant.

UNIT 5: SOLUTIONS Different methods for expressing the concentration of solution - molality, molarity, mole fraction, percentage (by volume and mass both), the vapour pressure of solutions and Raoult's Law - Ideal and non-ideal solutions, vapour pressure - composition, plots for ideal and non-ideal solutions; Colligative properties of dilute solutions - a relative lowering of vapour pressure, depression of freezing point, the elevation of boiling point and osmotic pressure; Determination of molecular mass using colligative properties; Abnormal value of molar mass, van't Hoff factor and its significance.

UNIT 6: EQUILIBRIUM Meaning of equilibrium, the concept of dynamic equilibrium. Equilibria involving physical processes: Solid-liquid, liquid - gas and solid-gas equilibria, Henry's law. General characteristics of equilibrium involving physical processes. Equilibrium involving chemical processes: Law of chemical equilibrium, equilibrium constants (Kp and Kc) and their significance, the significance of ΔG and ΔG° in chemical equilibrium, factors affecting equilibrium concentration, pressure, temperature, the effect of catalyst; Le Chatelier's principle. Ionic equilibrium: Weak and strong electrolytes, ionization of electrolytes, various concepts of acids and bases (Arrhenius. Bronsted - Lowry and Lewis) and their ionization, acid-base equilibria (including multistage ionization) and ionization constants, ionization of water. pH scale, common ion effect, hydrolysis of salts and pH of their solutions, the solubility of sparingly soluble salts and solubility products, buffer solutions.

UNIT 7: REDOX REACTIONS AND ELECTROCHEMISTRY Electronic concepts of oxidation and reduction, redox reactions, oxidation number, rules for assigning oxidation number, balancing of redox reactions. Electrolytic and metallic conduction, conductance in electrolytic solutions, molar conductivities and their variation with concentration: Kohlrausch's law and its applications. Electrochemical cells - Electrolytic and Galvanic cells, different types of electrodes, electrode potentials including standard electrode potential, half - cell and cell reactions, emf of a Galvanic cell and its measurement: Nernst equation and its applications; Relationship between cell potential and Gibbs' energy change: Dry cell and lead accumulator; Fuel cells.

UNIT 8: CHEMICAL KINETICS Rate of a chemical reaction, factors affecting the rate of reactions: concentration, temperature, pressure, and catalyst; elementary and complex reactions, order and molecularity of reactions, rate law, rate constant and its units, differential and integral forms of zero and first-order 8 reactions, their characteristics and half-lives, the effect of temperature on the rate of reactions, Arrhenius theory, activation energy and its calculation, collision theory of bimolecular gaseous reactions (no derivation).

UNIT 9: CLASSIFICATION OF ELEMENTS AND PERIODICITY IN PROPERTIES Modem periodic law and present form of the periodic table, s, p. d and f block elements, periodic trends in properties of elements atomic and ionic radii, ionization enthalpy, electron gain enthalpy, valence, oxidation states, and chemical reactivity.

UNIT 10: P- BLOCK ELEMENTS Group -13 to Group 18 Elements General Introduction: Electronic configuration and general trends in physical and chemical properties of elements across the periods and down the groups; unique behaviour of the first element in each group.

UNIT 11: d - and f- BLOCK ELEMENTS Transition Elements General introduction, electronic configuration, occurrence and characteristics, general trends in properties of the first-row transition elements - physical properties, ionization enthalpy, oxidation states, atomic radii, colour, catalytic behaviour, magnetic properties, complex formation, interstitial compounds, alloy formation; Preparation, properties, and uses of K2Cr2O7, and KMnO4. Inner Transition Elements Lanthanoids - Electronic configuration, oxidation states, and lanthanoid contraction. Actinoids - Electronic configuration and oxidation states.

UNIT 12: CO-ORDINATION COMPOUNDS Introduction to coordination compounds. Werner's theory; ligands, coordination number, denticity. chelation; IUPAC nomenclature of mononuclear co-ordination compounds, isomerism; Bonding-Valence bond approach and basic ideas of Crystal field theory, colour and magnetic properties; Importance of co-ordination compounds (in qualitative analysis, extraction of metals and in biological systems).

UNIT 13: PURIFICATION AND CHARACTERISATION OF ORGANIC COMPOUNDS Purification - Crystallization, sublimation, distillation, differential extraction, and chromatography - principles and their applications. Qualitative analysis - Detection of nitrogen, sulphur, phosphorus, and halogens. 9 Quantitative analysis (basic principles only) - Estimation of carbon, hydrogen, nitrogen, halogens, sulphur, phosphorus. Calculations of empirical formulae and molecular formulae: Numerical problems in organic quantitative analysis,

UNIT 14: SOME BASIC PRINCIPLES OF ORGANIC CHEMISTRY Tetravalency of carbon: Shapes of simple molecules - hybridization (s and p): Classification of organic compounds based on functional groups: and those containing halogens, oxygen, nitrogen, and sulphur; Homologous series: Isomerism - structural and stereoisomerism. Nomenclature (Trivial and IUPAC) Covalent bond fission - Homolytic and heterolytic: free radicals, carbocations, and carbanions; stability of carbocations and free radicals, electrophiles, and nucleophiles. Electronic displacement in a covalent bond - Inductive effect, electromeric effect, resonance, and hyperconjugation. Common types of organic reactions- Substitution, addition, elimination, and rearrangement.

UNIT 15: HYDROCARBONS Classification, isomerism, IUPAC nomenclature, general methods of preparation, properties, and reactions. Alkanes - Conformations: Sawhorse and Newman projections (of ethane): Mechanism of halogenation of alkanes. Alkenes - Geometrical isomerism: Mechanism of electrophilic addition: addition of hydrogen, halogens, water, hydrogen halides (Markownikoffs and peroxide effect): Ozonolysis and polymerization. Alkynes - Acidic character: Addition of hydrogen, halogens, water, and hydrogen halides: Polymerization. Aromatic hydrocarbons- Nomenclature, benzene - structure and aromaticity: Mechanism of electrophilic substitution: halogenation, nitration. Friedel - Craft's alkylation and acylation, directive influence of the functional group in monosubstituted benzene.

UNIT 16: ORGANIC COMPOUNDS CONTAINING HALOGENS General methods of preparation, properties, and reactions; Nature of C-X bond; Mechanisms of substitution reactions. Uses; Environmental effects of chloroform, iodoform freons, and DDT.

UNIT 17: ORGANIC COMPOUNDS CONTAINING OXYGEN General methods of preparation, properties, reactions, and uses. ALCOHOLS, PHENOLS, ANDETHERS 10 Alcohols: Identification of primary, secondary, and tertiary alcohols: mechanism of dehydration. Phenols: Acidic nature, electrophilic substitution reactions: halogenation. nitration and sulphonation. Reimer - Tiemann reaction. Ethers: Structure. Aldehyde and Ketones: Nature of carbonyl group; Nucleophilic addition to >C=O group, relative reactivities of aldehydes and ketones; Important reactions such as - Nucleophilic addition reactions (addition of HCN. NH3, and its derivatives), Grignard reagent; oxidation: reduction (Wolf Kishner and Clemmensen); the acidity of α-hydrogen. aldol condensation, Cannizzaro reaction. Haloform reaction, Chemical tests to distinguish between aldehydes and Ketones. Carboxylic Acids Acidic strength and factors affecting it,

UNIT 18: ORGANIC COMPOUNDS CONTAINING NITROGEN General methods of preparation. Properties, reactions, and uses. Amines: Nomenclature, classification structure, basic character, and identification of primary, secondary, and tertiary amines and their basic character. Diazonium Salts: Importance in synthetic organic chemistry.

UNIT 19: BIOMOLECULES General introduction and importance of biomolecules. CARBOHYDRATES - Classification; aldoses and ketoses: monosaccharides (glucose and fructose) and constituent monosaccharides of oligosaccharides (sucrose, lactose, and maltose). PROTEINS - Elementary Idea of α-amino acids, peptide bond, polypeptides. Proteins: primary, secondary, tertiary, and quaternary structure (qualitative idea only), denaturation of proteins, enzymes. VITAMINS – Classification and functions. NUCLEIC ACIDS – Chemical constitution of DNA and RNA. Biological functions of nucleic acids. Hormones (General introduction)

UNIT 20: PRINCIPLES RELATED TO PRACTICAL CHEMISTRY Detection of extra elements (Nitrogen, Sulphur, halogens) in organic compounds; Detection of the following functional groups; hydroxyl (alcoholic and phenolic), carbonyl (aldehyde and ketones) carboxyl, and amino groups in organic compounds. • The chemistry involved in the preparation of the following: Inorganic compounds; Mohr's salt, potash alum. Organic compounds:

Acetanilide, p-nitro acetanilide, aniline yellow, iodoform. 11 4 • The chemistry involved in the titrimetric exercises – Acids, bases and the use of indicators, oxalicacid vs KMnO4, Mohr's salt vs KMnO4 • Chemical principles involved in the qualitative salt analysis: Cations – Pb2+, Cu2+, Al3+, Fe3+ , Zn2+ , Ni2+ , Ca2+ , Ba2+ , Mg2+ , NH+ Anions- CO2−, S 2- ,SO2−, NO3- , NO2- , Cl- , Br- , I - (Insoluble salts excluded). 3 4 Chemical principles involved in the following experiments: 1. Enthalpy of solution of CuSO4 2. Enthalpy of neutralization of strong acid and strong base. 3. Preparation of lyophilic and lyophobic sols. 4. Kinetic study of the reaction of iodide ions with hydrogen peroxide at room temperature.

BIOLOGY

UNIT 1: Diversity in Living World • What is living?; Biodiversity; Need for classification;; Taxonomy & Systematics; Concept of species and taxonomical hierarchy; Binomial nomenclature; • Five kingdom classification; salient features and classification of Monera; Protista and Fungi into major groups; Lichens; Viruses and Viroids. • Salient features and classification of plants into major groups- Algae, Bryophytes, Pteridophytes, Gymnosperms (three to five salient and distinguishing features and at least two examples of each category); • Salient features and classification of animals-nonchordate up to phyla level and chordate up to classes level (three to five salient features and at least two examples).

UNIT 2: Structural Organisation in Animals and Plants • Morphology and modifications; Tissues; Anatomy and functions of different parts of flowering plants: Root, stem, leaf, inflorescence- cymose and recemose, flower, fruit and seed (To be dealt along with the relevant practical of the Practical Syllabus) Family (malvaceae, Cruciferae, leguminoceae, compositae, graminae). • Animal tissues; Morphology, anatomy and functions of different systems (digestive, circulatory, respiratory, nervous and reproductive) of an insect (Frog). (Brief account only)

UNIT 3: Cell Structure and Function • Cell theory and cell as the basic unit of life; Structure of prokaryotic and eukaryotic cell; Plant cell and animal cell; Cell envelope, cell membrane, cell wall; Cell organellesstructure and function; Endomembrane system-endoplasmic reticulum, Golgi bodies, lysosomes, vacuoles; mitochondria, ribosomes, plastids, micro bodies; Cytoskeleton, cilia, flagella, centrioles (ultra structure and function); Nucleus-nuclear membrane, chromatin, nucleolus. • Chemical constituents of living cells: Biomolecules-structure and function of proteins, carbodydrates, lipids, nucleic acids; Enzymes-types, properties, enzyme action, classification and nomenclature of anzymes • B Cell division: Cell cycle, mitosis, meiosis and their significance.

UNIT 4: Plant Physiology • Photosynthesis: Photosynthesis as a means of Autotrophic nutrition; Site of photosynthesis take place; pigments involved in Photosynthesis (Elementary idea); Photochemical and biosynthetic phases of photosynthesis; Cyclic and non cyclic and 13 photophosphorylation; Chemiosmotic hypothesis; Photorespiration C3 and C4 pathways; Factors affecting photosynthesis. • Respiration: Exchange gases; Cellular respiration-glycolysis, fermentation (anaerobic), TCA cycle and electron transport system (aerobic); Energy relations- Number of ATP molecules generated; Amphibolic pathways; Respiratory quotient. • Plant growth and development: Seed germination; Phases of Plant growth and plant growth rate; Conditions of growth; Differentiation, dedifferentiation and redifferentiation; Sequence of developmental process in a plant cell; Growth regulatorsauxin, gibberellin, cytokinin, ethylene, ABA;

UNIT 5: Human Physiology • Breathing and Respiration: Respiratory organs in animals (recall only); Respiratory system in humans; Mechanism of breathing and its regulation in humans- Exchange of gases, transport of gases and regulation of respiration Respiratory volumes; Disorders related to respiration- Asthma, Emphysema, Occupational respiratory disorders. • Body fluids and circulation: Composition of blood, blood groups, coagulation of blood; Composition of lymph and its function; Human circulatory system- Structure of human heart and blood vessels; Cardiac cycle, cardiac output, ECG, Double circulation; Regulation of cardiac activity; Disorders of circulatory system- Hypertension, Coronary artery disease, Angina pectoris, Heart failure. • Excretory products and their elimination: Modes of excretion- Ammonotelism, ureotelism, uricotelism; Human excretory system-structure and fuction; Urine formation, Osmoregulation; Regulation of kidney function- Renin-angiotensin, Atrial Natriuretic Factor, ADH and Diabetes insipidus; Role of other organs in excretion; Disorders; Uraemia, Renal failure, Renal calculi, Nephritis; Dialysis and artificial kidney. • Locomotion and Movement: Types of movement-ciliary, fiagellar, muscular; Skeletal muscle- contractile proteins and muscle contraction; Skeletal system and its functions (To be dealt with the relevant practical of Practical syllabus); Joints; Disorders of muscular and skeletal system- Myasthenia gravis, Tetany, Muscular dystrophy, Arthritis, Osteoporosis, Gout. • Neural control and coordination: Neuron and nerves; Nervous system in humanscentral nervous system, peripheral nervous system and visceral nervous system; Generation and conduction of nerve impulse; • Chemical coordination and regulation: Endocrine glands and hormones; Human endocrine system-Hypothalamus, Pituitary, Pineal, Thyroid, Parathyroid, Adrenal, Pancreas, Gonads; Mechanism of hormone action (Elementary Idea); Role of hormones as messengers and regulators, Hypo-and hyperactivity and related disorders (Common disorders e.g. Dwarfism, Acromegaly, Cretinism, goiter, exopthalmic goiter, diabetes, Addison's disease). (Imp: Diseases and disorders mentioned above to be dealt in brief.) 14

UNIT 6: Reproduction • Sexual reproduction in flowering plants: Flower structure; Development of male and female gametophytes; Pollination-types, agencies and examples; Outbreeding devices; Pollen-Pistil interaction; Double fertilization; Post fertilization events- Development of endosperm and embryo, Development of seed and formation of fruit; Special modesapomixis, parthenocarpy, polyembryony; Significance of seed and fruit formation. • Human Reproduction: Male and female reproductive systems; Microscopic anatomy of testis and ovary; Gametogenesis-spermatogenesis & oogenesis; Menstrual cycle; Fertilisation, embryo development upto blastocyst formation, implantation; Pregnancy and placenta formation (Elementary idea); Parturition (Elementary idea); Lactation (Elementary idea). • Reproductive health: Need for reproductive health and prevention of sexually transmitted diseases (STD); Birth control- Need and Methods, Contraception and Medical Termination of Pregnancy (MTP); Amniocentesis; Infertility and assisted reproductive technologies – IVF, ZIFT, GIFT (Elementary idea for general awareness).

UNIT 7: Genetics and Evolution • Heredity and variation: Mendelian Inheritance; Deviations from Mendelism Incomplete dominance, Co-dominance, Multiple alleles and Inheritance of blood groups, Pleiotropy; Elementary idea of polygenic inheritance; Chromosome theory of inheritance; Chromosomes and genes; Sex determination- In humans, birds, honey bee; Linkage and crossing over; Sex linked inheritance- Haemophilia, Colour blindness; Mendelian disorders in humans-Thalassemia; Chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes. • Molecular basis of Inheritance: Search for genetic material and DNA as genetic material; Structure of DNA and RNA; DNA packaging; DNA replication; Central dogma; Transcription, genetic code, translation; Gene expression and regulation- Lac Operon; Genome and human genome project; DNA finger printing, protein biosynthesis. • Evolution: Origin of life; Biological evolution and evidences for biological evolution from Paleontology, comparative anatomy, embryology and molecular evidence); Darwin's contribution, Modern Synthetic theory of Evolution; Mechanism of evolutionVariation (Mutation and Recombination) and Natural Selection with examples, types of natural selection; Gene flow and genetic drift; Hardy-Weinberg's principle; Adaptive Radiation; Human evolution.

UNIT 8: Biology and Human Welfare • Health and Disease; Pathogens; parasites causing human diseases (Malaria, Filariasis, Ascariasis. Typhoid, Pneumonia, common cold, amoebiasis, ring worm, dengue, chikungunya); Basic concepts of immunology-vaccines; Cancer, HIV and AIDS; Adolescence, drug and alcohol abuse. Tobacco abuse 15 • Microbes in human welfare: In household food processing, industrial production, sewage treatment, energy generation and as biocontrol agents and biofertilizers.

UNIT 9: Biotechnology and Its Applications • Principles and process of Biotechnology: Genetic engineering (Recombinant DNA technology). • Application of Biotechnology in health and agriculture: Human insulin and vaccine production, gene therapy; Genetically modified organisms-Bt crops; Transgenic Animals; Biosafety issues-Biopiracy and patents.

UNIT 10: Ecology and Environment • Organisms and environment Population interactions-mutualism, competition, predation, parasitism; Population attributes-growth, birth rate and death rate, age distribution. • Ecosystem: Patterns, components; productivity and decomposition; Energy flow; Pyramids of number, biomass, energy • Biodiversity and its conservation: Concept of Biodiversity; Patterns of Biodiversity; Importance of Biodiversity; Loss of Biodiversity; Biodiversity conservation; Hotspots, endangered organisms, extinction, Red Data Book, biosphere reserves, National parks and sanctuaries, Sacred Groves.

PHYSICS

UNIT 1: PHYSICS AND MEASUREMENT Units of measurements, System of Units, SI Units, fundamental and derived units, least count, significant figures, Errors in measurements, Dimensions of Physics quantities, dimensional analysis, and its applications.

UNIT 2: KINEMATICS The frame of reference, motion in a straight line, Position- time graph, speed and velocity; Uniform and non-uniform motion, average speed and instantaneous velocity, uniformly accelerated motion, velocity-time, position-time graph, relations for uniformly accelerated motion, Scalars and Vectors, Vector. Addition and subtraction, scalar and vector products, Unit Vector, Resolution of a Vector. Relative Velocity, Motion in a plane, Projectile Motion, Uniform Circular Motion.

UNIT 3: LAWS OF MOTION Force and inertia, Newton's First law of motion; Momentum, Newton's Second Law of motion, Impulses; Newton's Third Law of motion. Law of conservation of linear momentum and its applications. Equilibrium of concurrent forces. Static and Kinetic friction, laws of friction, rolling friction. Dynamics of uniform circular motion: centripetal force and its applications: vehicle on a level circular road, vehicle on a banked road.

UNIT 4: WORK, ENERGY, AND POWER Work done by a constant force and a variable force; kinetic and potential energies, work-energy theorem, power. The potential energy of spring conservation of mechanical energy, conservative and non conservative forces; motion in a vertical circle: Elastic and inelastic collisions in one and two dimensions.

UNIT 5: ROTATIONAL MOTION Centre of the mass of a two-particle system, Centre of the mass of a rigid body; Basic concepts of rotational motion; moment of a force; torque, angular momentum, conservation of angular momentum and its applications; The moment of inertia, the radius of gyration, values of moments of inertia for

simple geometrical objects, parallel and perpendicular axes theorems, and their applications. Equilibrium of rigid bodies, rigid body rotation and equations of rotational motion, comparison of linear and rotational motions. 2

UNIT 6: GRAVITATION The universal law of gravitation. Acceleration due to gravity and its variation with altitude and depth. Kepler's law of planetary motion. Gravitational potential energy; gravitational potential. Escape velocity, Motion of a satellite, orbital velocity, time period and energy of satellite.

UNIT 7: PROPERTIES OF SOLIDS AND LIQUIDS Elastic behaviour, Stress-strain relationship, Hooke's Law. Young's modulus, bulk modulus, modulus of rigidity. Pressure due to a fluid column; Pascal's law and its applications. Effect of gravity on fluid pressure. Viscosity. Stokes' law. terminal velocity, streamline, and turbulent flow.critical velocity . Bernoulli's principle and its applications. Surface energy and surface tension, angle of contact, excess of pressure across a curved surface, application of surface tension - drops, bubbles, and capillary rise. Heat, temperature, thermal expansion; specific heat capacity, calorimetry; change of state, latent heat. Heat transfer conduction, convection, and radiation.

UNIT 8: THERMODYNAMICS Thermal equilibrium, zeroth law of thermodynamics, the concept of temperature. Heat, work, and internal energy. The first law of thermodynamics, isothermal and adiabatic processes. The second law of thermodynamics: reversible and irreversible processes.

UNIT9: KINETIC THEORY OF GASES Equation of state of a perfect gas, work done on compressing a gas, Kinetic theory of gases - assumptions, the concept of pressure. Kinetic interpretation of temperature: RMS speed of gas molecules: Degrees of freedom. Law of equipartition of energy and applications to specific heat capacities of gases; Mean free path. Avogadro's number.

UNIT 10: OSCILLATIONS AND WAVES Oscillations and periodic motion – time period, frequency, displacement as a function of time. Periodic functions. Simple harmonic motion (S.H.M.) and its equation; phase: oscillations of a spring -restoring force and force constant: energy in S.H.M. - Kinetic and potential energies; Simple pendulum - derivation of expression for its time period: Wave motion. Longitudinal and transverse waves, speed of travelling wave. Displacement relation for a progressive wave. Principle of superposition of waves, reflection of waves. Standing waves in strings and organ pipes, fundamental mode and harmonics. Beats.

UNIT 11: ELECTROSTATICS Electric charges: Conservation of charge. Coulomb's law forces between two point charges, forces between multiple charges: superposition principle and continuous charge distribution. Electric field: Electric field due to a point charge, Electric field lines. Electric dipole, Electric field due to a dipole. Torque on a dipole in a uniform electric field. 3 Electric flux. Gauss's law and its applications to find field due to infinitely long uniformly charged straight wire, uniformly charged infinite plane sheet, and uniformly charged thin spherical shell. Electric potential and its calculation for a point charge, electric dipole and system of charges; potential difference, Equipotential surfaces, Electrical potential energy of a system of two point charges and of electric dipole in an electrostatic field. Conductors and insulators. Dielectrics and electric polarization, capacitors and capacitances, the combination of capacitors in series and parallel, capacitance of a parallel plate capacitor with and without dielectric medium between the plates. Energy stored in a capacitor.

UNIT 12: CURRENT ELECTRICITY Electric current. Drift velocity, mobility and their relation with electric current. Ohm's law. Electrical resistance. V-l characteristics of Ohmic and non-ohmic conductors. Electrical energy and power. Electrical resistivity and conductivity. Series and parallel combinations of resistors; Temperature dependence of resistance. Internal resistance, potential difference and emf of a cell, a combination of cells in series and parallel. Kirchhoff's laws and their applications. Wheatstone bridge. Metre Bridge.

UNIT 13: MAGNETIC EFFECTS OF CURRENT AND MAGNETISM Biot - Savart law and its application to current carrying circular loop. Ampere's law and its applications to infinitely long current carrying straight wire and solenoid. Force on a moving charge in uniform magnetic and electric fields. Force on a current-carrying conductor in a uniform magnetic field. The force between two parallel currents carrying conductors-definition of ampere. Torque experienced by a current loop in a uniform magnetic field: Moving coil galvanometer, its sensitivity, and conversion to ammeter and voltmeter. Current loop as a magnetic dipole and its magnetic dipole moment. Bar magnet as an equivalent solenoid, magnetic field lines; Magnetic field due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis. Torque on a magnetic dipole in a uniform magnetic field. Para-, dia- and ferromagnetic substances with examples, effect of temperature on magnetic properties.

UNIT 14: ELECTROMAGNETIC INDUCTION AND ALTERNATING CURRENTS Electromagnetic induction: Faraday's law. Induced emf and current: Lenz's Law, Eddy currents. Self and mutual inductance. Alternating currents, peak and RMS value of alternating current/ voltage: reactance and impedance: LCR series circuit, resonance: power in AC circuits, wattless current. AC generator and transformer.

UNIT 15: ELECTROMAGNETIC WAVES Displacement current. Electromagnetic waves and their characteristics, Transverse nature of electromagnetic waves, Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet. X-rays. Gamma rays), Applications of e.m. waves.

UNIT 16: OPTICS Reflection of light, spherical mirrors, morror formula. Refraction of light at plane and spherical surfaces, thin lens formula and lens maker formula. Total internal reflection and its applications. 4. Magnification. Power of a Lens. Combination of thin lenses in contact. Refraction of light through a prism. Microscope and Astronomical Telescope (reflecting and refracting) and their magnifying powers. Wave optics: wavefront and Huygens' principle. Laws of reflection and refraction using Huygens principle. Interference,

Young's double-slit experiment and expression for fringe width, coherent sources, and sustained interference of light. Diffraction due to a single slit, width of central maximum. Polarization, plane-polarized light: Brewster's law, uses of plane-polarized light and Polaroid.

UNIT 17: DUAL NATURE OF MATTER AND RADIATION Dual nature of radiation. Photoelectric effect. Hertz and Lenard's observations; Einstein's photoelectric equation: particle nature of light. Matter waves-wave nature of particle, de Broglie relation.

UNIT 18: ATOMS AND NUCLEI Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model, energy levels, hydrogen spectrum. Composition and size of nucleus, atomic masses, Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number, nuclear fission, and fusion.

UNIT 19: ELECTRONIC DEVICES Semiconductors; semiconductor diode: I-V characteristics in forward and reverse bias; diode as a rectifier; I-V characteristics of LED. the photodiode, solar cell, and Zener diode; Zener diode as a voltage regulator. Logic gates (OR. AND. NOT. NAND and NOR).

B.COM. (HONORS), M.COM. (HONORS SCHOOL-FYIP & FYIP MBA (FM/ AM)

Online Form No. 31

1. Eligibility: M. Com. (Honors School -Five Year Integrated Programme)

Student Intake**: 55**

A student will be eligible to admission to this Programme if he/she has obtained 50% (45% in the case of SC/ST) marks in aggregate in 10+2 examination (Senior Secondary System) in any group from the Punjab School Education Board/C.B.S.E./I.S.C. Or any other examination recognized as equivalent thereto by the Punjabi University, Patiala.

2. Eligibility: B. Com. (Honors) (3+1 scheme)*

Student Intake: **30**

A student will be eligible to admission to this Programme if he/she has obtained 50% (45% in the case of SC/ST) marks in aggregate in 10+2 examination (Senior Secondary System) in any group from the Punjab School Education Board/C.B.S.E./I.S.C. Or any other examination recognized as equivalent thereto by the Punjabi University, Patiala.

3. Eligibility: Five Years Integrated Programme MBA (FM/AM)

Student Intake**: 90**

A student will be eligible to admission to this Programme if he/she has obtained 50% (45% in the case of SC/ST) marks in aggregate in 10+2 examination (Senior Secondary System) in any group from the Punjab School Education Board/C.B.S.E./I.C.S.E. Or any other examination recognized as equivalent thereto by the Punjabi University, Patiala.

The Admission to all above programmes will be on the basis of marks obtained in Entrance Test.

INSTRUCTIONS FOR CANDIDATES APPEARING IN B.COM (HONORS), M.COM (HONORS SCHOOL-FYIP), FYIP MBA (FM/AM) ENTRANCE TEST

- The question paper shall consist of **100 Multiple-Choice Questions (MCQs).**
- The Question paper distribution will be as follows:

Question Category	No. of Questions
English	25
General Awareness/ Mental Ability/ Mathematics/Statistics/Economics/ Accountancy and Business Studies	75

- Each question will have **four options (A, B, C, D)** with only one correct answer.
- There will no negative marking.
- Duration of the test will be **2 hours. No extra time will be provided.**
- Qualifying marks in the Entrance Test are **10% for SC/ST/Persons with Disability (PWD) candidates and 15% for General and all other categories.**
- **Admit Cards** for appearing in the Entrance Test will be available for download on https://pupadmissions.ac.in/ as per schedule. In case a candidate is not able to download Admit Card, kindly contact Centralized Admission Cell.
- Candidates must check the **admission schedule and important dates on https://pupadmissions.ac.in/** regularly.
- The candidates are strictly advised to **check the Eligibility Criteria#** mentioned in the Prospectus/ Handbook of Information **#(the Programme in which he/she is seeking admission)** before filling form.
- Candidates must bring their **Admit Card to the Test Centre along with valid ID Proof.** Without Admit Card, candidates are not allowed to appear in the Entrance Test.
- **Admission** will be offered on the basis of **merit in entrance test** provided candidate fulfils the basic eligibility criteria.
- The Entrance Test result will be declared on https://pupadmissions.ac.in/

SYLLABUS FOR ENTRANCE TEST-2026

FOR B.COM. (HONORS) (3+1 SCHEME), M.COM. (HONORS. SCHOOL-FYIP) & FYIP MBA (FM/ AM)

1. **ENGLISH**

Comprehension at paragraph and sentence levels, identification of Common errors; grammar and usage; Vocabulary- word formation, synonyms, antonyms, pairing of words, analogies, sentence structure and construction, prepositions, Phrases and Expressions, completion of sentences.

2. **GENERAL AWARENESS**

Current Affairs featuring in Main stream media between April 2025 - March 2026.

3. **MENTAL ABILITY**

- Analytical
- logical
- Data Interpretation

4 (a) **MATHEMATICS**

Sets, Functions, Trignometric functions, Principles of Mathematical Induction, Complex numbers & Quadratic Equatios, Linear Inequalities, Three dimensional Geometry.

4(b) **ECONOMICS & STATISTICS**

Basic concepts of Economics, Consumers' equilibrium: Utility, Law of Demand & Elasticity of Demand, Measures of Central Tendency, Measures of Dispersion, Correlation & Index Numbers.

5. (a) ACCOUNTANCY

Accounting & Book Keeping, Basic accounting terms, Basis of accounting, Accounting equations, Accounting Cycle, Accounting Principles and Concepts, Journal, Ledger and Trial Balance.

5. **(b) BUSINESS STUDIES**

Classification of business activities, Form of Business Organisation, Type of companies, Brief Introduction to functions of management.

BCA (HONORS WITH RESEARCH)
ON CAMPUS PROGRAMME (3+1 SCHEME)
Online Form No. 32

Eligibility:

The admission to B.C.A. (3+1 **Honors**) On Campus Programme shall be open to candidates who have passed 10+2 in any stream with at least 50% marks (45% for SC/ST and for persons with at least 40% disability) without reappear **and passed Mathematics as one of the subject at 10+2 examination level from PSEB/CBSE/ICSE or any other board or examination recognised as equivalent thereto by the Punjabi University, Patiala**

The Admission will be on the basis of marks obtained in the Entrance Test.

Student Intake: 50

INSTRUCTIONS FOR CANDIDATES APPEARING IN BCA (HONORS) ENTRANCE TEST

1. The question paper shall consist of **100 Multiple-Choice Questions (MCQs).**
2. The Question paper distribution will be as follows:

Question category	No. of Questions
Logical & Analytical Reasoning	about 25
Computer Awareness	about 25
Mathematics	about 50

3. Each question will have **four options (A, B, C, D)** with only one correct answer.
4. There will no negative marking.
5. Duration of the test will be **2 hours. No extra time will be provided.**
6. Qualifying marks in the Entrance Test are **10% for SC/ST/Persons with Disability (PWD) candidates and 15% for General and all other categories.**
7. **Admit Cards** for appearing in the Entrance Test will be available for download on https://pupadmissions.ac.in/ as per schedule. In case a candidate is not able to download Admit Card, kindly contact Centralized Admission Cell.
8. Candidates must check the **admission schedule and important dates on https://pupadmissions.ac.in/** regularly.
9. The candidates are strictly advised to **check the Eligibility Criteria#** mentioned in the Prospectus/ Handbook of Information **#(the Programme in which he/she is seeking admission)** before filling form.
10. Candidates must bring their **Admit Card to the Test Centre along with valid ID Proof.** Without Admit Card, candidates are not allowed to appear in the Entrance Test.
11. **Admission** will be offered on the basis of **merit in entrance test** provided candidate fulfils the basic eligibility criteria.
12. The Entrance Test result will be declared on https://pupadmissions.ac.in/

SYLLABUS FOR ENTRANCE TEST-2026

Bachelor of Computer Applications (Honors with Research)
On Campus Programme (3+1 Scheme)

Syllabus

- Logical & Analytical Reasoning (about 25 questions): Number Series and Alphabet Series, Blood Relations, Direction Sense, Verbal Reasoning, Analogies, Logical Connectives, Puzzle Solving, Seating Arrangements, Statements and Assumptions, Coding and Decoding
- Computer Awareness (about 25 questions): Computer Fundamentals, Number System, Hardware/Software, Input/Output Devices, Computer Memory, Operating Systems, Computer Networks, MS Office, Internet and Networking Basics, Networking Devices, Internet Technologies and Protocols
- Mathematics (about 50 questions): Sets Relations & Functions, Complex Numbers & Quadratic Equations, Permutation & Combination, Binomial Theorem, Matrices & Determinants, Limit Continuity & Differentiability, Indefinite Integration, Definite Integration & its Applications, Differential Equations, Cartesian Systems & Lines, Circle, Conic Section, Trigonometric Ratios & Equations, Trigonometric Angles & Functions, Vector Algebra & Three Dimensional Space, Statistics, Basic Operations on Arithmetic, Commercial Mathematics, Mensuration

MASTER OF PHYSIOTHERAPY (MPT)
Online Form No. 5

Eligibility:

Full time BPT Programme passed with 50% marks from recognized university/board/institution in regular mode. Any bridge Programme/ certificate Programme/ Programme from Distance mode will not be considered.

The Admission will be on the basis of marks obtained in the Entrance Test.

Student Intake: 28

Note: Any time to time updated admission criteria by NCAHP will be applicable for the admission to MPT courses.

INSTRUCTIONS FOR CANDIDATES APPEARING IN MPT ENTRANCE TEST

1. The question paper shall consist of **100 Multiple-Choice Questions (MCQs).**
2. The Question paper distribution will be as follows:

Question category	No. of Questions
Section A	about 20
Section B	about 30
Section C	about 50

3. Each question will have **four options (A, B, C, D)** with only one correct answer.
4. There will no negative marking.
5. Duration of the test will be **2 hours. No extra time will be provided.**
6. Qualifying marks in the Entrance Test are **10% for SC/ST/Persons with Disability (PWD) candidates and 15% for General and all other categories.**
7. **Admit Cards** for appearing in the Entrance Test will be available for download on https://pupadmissions.ac.in/ as per schedule. In case a candidate is not able to download Admit Card, kindly contact Centralized Admission Cell.
8. Candidates must check the **admission schedule and important dates on https://pupadmissions.ac.in/** regularly.
9. The candidates are strictly advised to **check the Eligibility Criteria#** mentioned in the Prospectus/ Handbook of Information **#(the Programme in which he/she is seeking admission)** before filling form.
10. Candidates must bring their **Admit Card to the Test Centre along with valid ID Proof.** Without Admit Card, candidates are not allowed to appear in the Entrance Test.
11. **Admission** will be offered on the basis of **merit in entrance test** provided candidate fulfils the basic eligibility criteria.
12. The Entrance Test result will be declared on https://pupadmissions.ac.in/

SYLLABUS FOR ENTRANCE TEST-2026

Master of Physiotherapy (MPT)

SECTION A

(PRECLINICAL SUBJECTS)

HUMAN ANATOMY

General Anatomy:

1. Bones: Composition, Functions, Classification, Development of Bones esp. Long Bones, Parts of Long Bones; Blood Supply of Bones;
2. Cartilage: Types and Features
3. Joints: Definition, types, features, blood supply, applied aspects.
4. Muscles: Definition, types, features, parts & structure of skeletal muscle, blood supply and nerve supply of skeletal muscle; motor unit, types of skeletal muscles based on their action, applied aspects
5. Connective Tissue: Introduction, composition, types, Functions

Systemic Anatomy:

1. Cardiovascular System – General anatomy of heart,
2. Respiratory System – Outline of respiratory track as a whole, trachea, bronchi, pleura & broncho pulmonary segments of lungs
3. Digestive System – General anatomy of digestive system.
4. Urogenital System – General anatomy of urogenital system of male and female
5. Integumentary System: Structure of skin and its appendages

Regional Anatomy:

1. Head & Neck: Cranial bones, cervical vertebrae, temporo-mandibular joint, atlanto occipital joint, atlanto axial joint, scalp, fascial muscles, triangles of neck.
2. Thorax: Ribs, vertebrae, inter costal space, joints of thorax, mediastinum, inter costal nerves, muscles and fascia as related to vertebral column, diaphragm
3. Superior extremity: Bones in detail, muscles origin insertion action nerve supply, joints and their applied anatomy, breast, axilla, cubital fossa, important spaces, brachial plexus, course of nerves & arteries of the upper extremity, lymphatic and venous drainage
4. Inferior extremity: Bones in detail, muscles origin, insertion, action, nerve supply, joints and their applied anatomy, arches of foot and its applied anatomy, femoral triangle, popliteal fossa, greater & lesser sciatic foramen; lumber plexus, sacral plexus, course of nerves & arteries of the lower extremity, lymphatic and venous drainage.
5. Abdomen and pelvis: Lumbar vertebra, sacrum, bony pelvis, anterior abdominal wall, inguinal canal, liver, gall bladder, Kidney, ureter, supra renal gland, urethra, joints of pelvis
6. Neuro – Anatomy: CNS, ANS

HUMAN PHYSIOLOGY

1. Cell Structure and organelles
2. Blood: Composition of blood, structure, formation and functions of R.B.C., W.B.C.s and platelets, coagulation, bleeding and clotting time, blood groups and their significance, Rh Factor, blood transfusion, structure and functions of spleen, haemoglobin and E.S.R.
3. Cardiovascular System: Structure, properties of heart muscle and nerve supply of heart, structure and function of arteries, arterioles, capillaries and veins, cardiac cycle, heart sounds, cardiac output, heart rate and its regulation, cardiovascular reflexes, blood pressure &its regulations and physiological variations,
4. Respiratory System: Mechanics, lung volumes and capacities, O_2 and CO_2 carriage and their exchange in tissues and lungs, regulation of respiration
5. Digestive System: General outline and salivary digestion, gastric secretion and its mechanism of secretion and functions, mechanism of secretion of mucous, intestinal and pancreatic secretions and their functions, structure, secretions and functions of liver.
6. Endocrine System: Anterior & Posterior pituitary hormones
7. Reproductive System: sex hormones and their functions, menstrual cycle, ovulation and contraception, pregnancy, functions of placenta.
8. Excretory System, Structure and Functions of Kidney, renal Circulation, auto regulation, renal function Tests, physiology of micturition
9. Muscle physiology: Types, microscopic structure, properties, comparison of various muscle types, mechanism of muscular contraction, action potential, motor units and its properties, electromyography applied aspects.
10. Nerve physiology: Nerve fibers, velocity of nerve conduction, factors affecting velocity, saltatory conduction, neuromuscular junction, Drugs acting on it, myasthenia gravis, atrophy, hypotrophy and hypertrophy, degeneration and regeneration of nerve fiber, wallerian degeneration
11. Special senses: Hearing, vision, taste, smell, touch and speech disorders.
12. Nervous System: Receptors, synapse, reflex arc, tracts of spinal cord, upper and lower motor neuron lesions, cerebral cortex, areas and functions, E.E.G., structure, connections and functions of cerebellum and hypothalamus, basal ganglia and thalamus, reticular formation, tone, posture and vestibular apparatus, automatic nervous system.

BIOCHEMISTRY

1. Concepts of pH and buffers
2. Cell: morphology, structure, cell membrane, Nucleus, chromation, Mitochondria, Endoplasmic Reticulum, Ribosomes.
3. Carbohydrates: Definition, functions, sources, types and its importance.
4. Lipids: Definition, function, sources, classification and their importance.
5. Proteins: Definition, sources, classification and importance
6. Carbohydrate Metabolism: Glycolysis, HMP shunt pathway, TCA cycle, glycogenesis, glycogenolysis, glucogenesis,
7. Lipid Metabolism: Fatty acid oxidation, fatty acid synthesis, metabolism of cholesterol
8. Protein Metabolism: Transamination, deamination, fate of ammonia, urea synthesis and synthesis of creatine, inborn errors of metabolism.
9. Nucleic acid Structure and function of DNA and RNA. Nucleosides, nucleotides, Genetic code, biologically important nucleotides, gene therapy.
10. Enzymes: Definitions, mode of action, factor affecting enzyme action, clinical importance of enzyme.
11. Vitamins: Classification, daily requirements, physiological functions and diseases of vitamin deficiency.
12. Hormones: General characteristics and mechanism of hormone action insulin, glucagon, thyroid and parathyroid hormones.
13. Connective tissue: Mucopoly saccharide connective tissue proteins, glycoprotein, chemistry & Metabolism of bone and tooth, metabolism of skin.

14. Nerve tissue: Composition, metabolism, chemical mediators of nerve activity.
15. Water and Electrolyte: Fluid compartment, daily intake and output sodium and potassium metabolism.
16. Nutrition: Balance, diet, metabolism in exercise and injury, nitrogen equilibrium, biological value of protein, special dynamic action.
17. Dietary Management of Acute & chronic diseases viz. Heart, hypertension, diabetes mellitus, atherosclerosis, cancer, allergies stomach, liver, gall bladder.

PATHOLOGY

1. Causes of disease, cell injury –feature, mechanism
2. Inflammation- definition, types, difference, events of acute inflammation, chemical mediator of inflammation, morphological types of acute inflammation
3. Repair –primary healing, secondary healing, factors affecting healing and repair, healing of skin, muscle and bone
4. Fluid and hemodynamic derangements– oedema, hyperemia, Haemorrhage, shock, embolism, thrombosis, infarction
5. Immunity – natural and acquired, immunological mechanisms of tissue injury, hypersensitivity reactions, general features of autoimmune diseases and immunodeficiency diseases.
6. Nutritional disorders: deficiency disorders (protein deficiency, vitamin deficiency (A, B, C, D, E,) causes and features, iodine deficiency
7. Infectious diseases: causative organism, mode of transmission, pathogenesis, prevention, and diagnostic tests (details of the execution and interpretation of the tests not required**):** chicken pox, measles, mumps, influenza, diphtheria, whooping cough, poliomyelitis, tetanus, tuberculosis, leprosy, rubella, cholera, hepatitis, aids, typhoid, rabies, STD, ameobiasis, kalaazar, malaria, filaria
8. Etiology, pathogenesis and general features of (Details of morphological and microscopic features and diagnostic procedures not required):
9. Disease of blood: anaemia**s**, leukemia
10. Disease of circulatory system: atherosclerosis, thromboangitisobliterence, varicose vein, DVT, thrombophlebitis, lymphoedema, congestive cardiac failure, ischemic heart disease, rheumatic heart disease,) congenital heart disease
11. Disease of Respiratory System: pneumonias, bronchiactesis, emphysema, chronic bronchitis, asthma, cccupationallung diseases, carcinoma of lungs
12. Disease of Bone & Joints: pagets disease, osteogenesisimperfecta, osteomylitis, arthritis- rheumatoid, degenerative, infective, metabolic disorders, osteoporosis
13. Diseases of Muscles: muscular dystrophy, myasthenia gravis, myocitis
14. Diseases of Nervous system**:** meningiti**s**, encephalitis, vascular diseases of brain, peripheral nerve lesions
15. Diseases of endocrine system: diabetes mellitus, thyroiditis, thyrotoxicosis, myxedema

PHARMACOLOGY

1. Brief introduction of following- chemical character of drugs, general action of drugs, drug allergy and idiosyncrasy, drug toxicity, metabolic fate of drugs, methods of administration, process of drug absorption, dosage forms
2. Drugs acting on peripheral nervous system- cholinergic and adrenergic activity
3. Drugs acting on neuromuscular junction and Muscles-Neuromuscular blockers, muscle relaxants, anti-inflammatory
4. Drugs acting on cardio-vascular system
5. Drugs acting on central nervous system: anesthetics, alcoholics, alkaloids, narcotics, antipyretics, hypnotics, sedatives, anticonvulsants, anti-anxiety, stimulants and psychotherapies.
6. Drugs acting on respiratory system
7. Drugs for pain management
8. Chemotherapeutic agents
9. Hormones and drugs affecting endocrine functions

10. Metabolic and other inorganic compounds
11. Vitamins
12. Immunologic agents

MPT ENTRANCE SYLLABUS
SECTION B
(BASIC PHYSIOTHERAPY SUBJECTS)
EXERCISE THERAPY

1. Review of the principles of mechanics applied to exercise Therapy
2. Starting positions, their muscle work, effects and uses. Specify the importance and derived position for each - Standing, Kneeling, Sitting, Lying and Hanging.
3. Classification of therapeutic exercises: Technique, effects, therapeutic uses of active exercise, (free, active, active assisted, resisted), passive exercises
4. Goniometry
5. Mobilisation exercises of the joints region-wise- passive, active & Joint Mobilization
6. Muscle grading
7. Soft tissue manipulation - techniques definition, classification, physiological effects, therapeutic effects and contraindications, techniques, sequence and preparation for massage of upper limb, lower limb, back and face.
8. Relaxation: Techniques of relaxation (local and general) including effects, uses & clinical application.
9. Strength Training – general principles, PRE
10. Suspension Therapy: Definition, principles, equipments & accessories; indications & contraindications; benefits and types of suspension therapy
11. Functional re-education: General therapeutics techniques to re-educate ADLs functions, mat activities, starting and derived positions, Hand Rehabilitation, Posture
12. Stretching: Definition, precautions and contraindications of stretching, techniques of stretching.
13. Breathing Mechanism: types, techniques, indications, contraindications, therapeutic effects and precautions of breathing exercises, chest expansion measurement and evaluation, postural drainage
14. Group Exercises*:* Advantages, disadvantages, organization of group exercises, recreational activities and Sports.
15. Posture, Assessment and various postural abnormalities and corrective Exercise therapy
16. Hydrotherapy: Basic principles, physiological and therapeutic effects, types of hydrotherapy equipment including indications, contraindications, operational skills and patient preparation.
17. Aerobic Exercise
18. Traction: Principle, physiological and therapeutic effects, classification and types, indications, contraindications, techniques applications, operational skills and precautions
19. Motor Learning and Functional Re-education
20. PNF - principle & techniques
21. Static and Dynamic Balance and Posture - assessment & management including therapeutic exercises, coordination
22. Gait training: Normal gait cycle and its phases, Principles of gait selection and training, Types of walking aids, indications, effects and various training techniques, transfer techniques, Stair climbing training, Pathological gait.

ELECTROTHERAPY

1. Physical principles in relation to Physiotherapy, effects of current electricity and electrical Supply
2. Low Frequency Currents- Introduction to direct, alternating and modified currents, iontophoresis, faradic current, interrupted direct current, Transcutaneous Electrical Nerve Stimulations (TENS) – types, theories, principles of clinical application, effects and uses, indications, contraindications, precautions. Operational skills of equipment and patient preparation.
3. Electrical Reactions and Electro-Diagnostic Tests - Electrical stimuli and normal behavior of nerve and muscle tissue, types of lesion and development of reaction of degeneration, faradic/intermittent direct current test, S.D. Curve and its application, chronaxie, rheobase and pulse ratio.
4. Infrared Rays-
5. Ultra Violet Rays (UVR)

6. Superficial Heat: Paraffin wax bath, moist heat, electrical heating pads.
7. High frequency sound waves (therapeutic Ultrasound)
8. High frequency currents (SWD, MWD)
9. Medium frequency currents (Russian currents, interferential therapy
10. Radiation therapy- LASER
11. Therapeutic Cold (Cryotherapy
12. Therapeutic mechanical pressure (Intermittent Compression Therapy)
13. Review of Neuromuscular physiology including effects of electrical stimulation, Instrumentation, definition and basic techniques of Strength Duration Techniques, EMG and NCV.
14. Biofeedback: instrumentation, principles, therapeutic effects, indications, precautions, operational skills and patient preparation

BIOMECHANICS

1. Basic Concepts of Biomechanics*:* motion, forces, parallel forces system, concurrent force systems, axis & plane, centre of gravity, line of gravity, stability and equilibrium
2. Introduction to Biomechanical Analysis: Starting Positions, introduction to Bio-Mechanics and kinesiology. Introduction to the techniques of biomechanical analysis
3. Joint Structure and Function*:* Basic principles of Joint design, tissues present in human joint, classification of joints, joint function, Kinematics chains and range of motion, levers & their efficiency, anatomical levers, pulley & anatomical pulley
4. Muscle Structure and function*:* Mobility and stability functions of muscle, Elements of muscle structure and its properties, Types of muscle contractions and muscle work, Classification of muscles and their functions, Group action of muscles, Co-ordinated movement.
5. Biomechanics of vertebral column (Spine)
6. The Biomechanics of: Shoulder joint, Elbow Joint, Wrist & Hand, Hip joint, Knee joint, Ankle joint
7. Posture: Definition, factors responsible for posture, relationship of gravity on posture, Postural imbalance, Introduction to ergonomics
8. Gait: Description of Normal gait, determinants of gait, spatio temporal features and analysis, Gait deviations – Types, Causative factors and analysis.
9. Activities of daily living (ADLs): BADL, IADL

ETHICS

1. History of Physiotherapy, Ethical principles related to physiotherapy, scope of practice.
2. Rules of Professional Conduct: Physiotherapy as a profession, relationship with patients, relationship with health care institutions, relationship with colleagues and peers, relationship with medical and other professional.
3. Management and Administration: Planning and organization, Organization, Staffing, Information, Communication, Coordination, cost of services, Monitoring and evaluation, an overview of functioning of Physiotherapy Department, principles of hospital administration and its applications to Physiotherapy, financial issues including budget and income generation.
4. Roles of Physiotherapist as patient manager, Consultant, Critical inquirer, Educator, Administrator, Inter professional communication & Professional development, Competence and expertise
5. Ethics in Teaching, Research & Clinical Practice and Concept of professionalism and Professional dress code & Concept of morality and ethics.
6. Law: laws and legal concepts & medico legal concepts, compensation, protection from malpractice claims, consumers protection act., liability and documentation, negligence of duty.
7. Legal Aspects: Consumer protection act, Legal responsibility of physiotherapist for their action in professional context and understanding liability and obligations in case of medico-legal action.
8. Confidentiality and Responsibility, Malpractice and negligence, Provision of services and, advertising.
9. Health care system in India.
10. Ethical Principles in Health care
11. Enforcing standards in health profession-promoting quality care.

RESEARCH METHODOLOGY & BIOSTATISTICS

1. Research- Definition, objectives, scope, research methods versus methodology, morality and ethical issues in research in physiotherapy.
2. Experimental methods
3. Sample – importance and types of sampling
4. Schedules – Definition, purpose, essentials of good schedule, advantages and limitations.
5. Questionnaire – Types, reliability and validity of questionnaire, advantages and limitations, difference between questionnaire and schedule.
6. Interview – Types and techniques of interview, limitations.
7. Observations – Types, importance and limitations.
8. Case study – Definitions, sources, characteristics, evolution and scope, advantages, limitations and improvements.
9. Statistics: Definition, origin and growth, functions, applications in physiotherapy and limitations of statistics.
10. Presentation of data: Types of diagrams, techniques of construction of graph
11. Central tendencies
12. Measures of Dispersion
13. Correlation analysis: types and methods, scatter diagram, Karl Pearson's coefficient of correlation, Rank correlation coefficient.
14. Regression analysis: linear and curvilinear regression, binomial distribution – normal distribution and poison distribution.
15. Test of significance: Tests of hypothesis- t-test – one tailed and two tailed, chi-square test, misuse and limitations, F – test, and ANOVA.
16. Univariate and bivariate analysis: parametric and non-parametric tests, Mann-whitney U test, Spearman's rank correlation, Kruskal-Wallis test.

MPT ENTRANCE TEST SYLLABUS
SECTION C
(PHYSIOTHERAPY CLINICAL SUBJECTS)
PHYSIOTHERAPY IN NEUROLOGICAL CONDITIONS

1. Approaches of neurological physiotherapy: Basic outline of principles of treatment techniques & approaches used in neurophysio therapy line N.D.T. Movement Therapy, Motor Relearning Programme, P.N.F. Roods Approach, Sensory Re-education, Facilitatory & Inhibitory Techniques.
2. Detailed Assessment & Physiotherapy Management and Rehabilitation in following conditions: Hemiplegia, Meningitis, Encephalitis, Parkinsonism, Multiple sclerosis, Cerebellar Ataxia, Myopathies, Motor Neuron Disorder, Spinal cord lesions & infections, Syringomyelia, Transverse Myelitis, Tabes Dorsalis, Traumatic Spinal cord injuries (Tetraplegia & Paraplegia), Head Injuries, Physiotherapy Rehabilitation in Surgeries of Nerve
3. Physiotherapy in Psychiatric Conditions: How to handle a patient.
4. Motor Development, Milestones, Neo-natal & Primitive Reflexes.
5. Detailed Assessment & Physiotherapy Management and Rehabilitation of the following conditions: Cerebral Palsy, Spina Bifida & Hydrocephalus, Polyneuropathies (classification, types, pathophysiology) - G.B.Syndrome, alcoholic, Diabetic, Sensory, Polyneuropathy
6. Peripheral nerve injuries: Brachial Plexus Injuries, Neuritis, Neuralgia, Injuries of nerves of upper & lower extremities, Facial Nerve Palsy

PHYSIOTHERAPY IN MUSCULOSKELETAL CONDITIONS

1. Infections in bones and joints: - Acute, Chronic
2. Rheumatic Disorders
3. Degenerative Disorders of hip, knee, ankle, shoulder and spine
4. Congenital disorders or Deformities: Congenital Torticollis, Cervical rib, Sprengels shoulder, Coxa vara&valga, CTEV, Pes Planus, Pes cavus etc.
5. Cervical and lumbar spinal disorders

6. Inflammatory conditions of spine
7. Deformities of Spine: Scoliosis, kyphosis, Lordosis. Outline the salient clinical features, management and complication
8. Intervertebral disc prolapsed (PIVD)
9. Thoracic Outlet Syndrome
10. Corrective Surgery: Arthrodesis, Osteotomy, tendon transplantation, soft tissue release, grafting, Arthroplasty, discuss in detail pre and post-operative physiotherapy management.
11. Fractures and dislocations of upper limb, lower limb and spine
12. Hand Injuries: Flexor tendon, Extensor tendon, Crush injury.
13. Compartment Syndrome, Reflex sympathetic dystrophy.
14. Amputation
15. Soft Tissue injuries and inflammatory condition of upper and lower limb
16. Peripheral Nerve Injuries: Discuss anatomy of Brachial plexuses, deformities, injuries and detailed PT management of PNI (Radial, median ulnar, sciatic nerve).
17. Leprosy: Common deformities, Clinical Features, Rehabilitation.
18. Poliomyelitis

PHYSIOTHERAPY IN CARDIO-THORACIC CONDITIONS

1. Principles of Cardio Respiratory Evaluation
2. General Overview of Physiotherapy Techniques- Indication, goals and procedure of breathing exercise; diaphragmatic breathing, localized basal expansion, apical expansion, specific segmental exercise, Chest Mobilization Exercise, Relaxation Positions for the breathless patient, controlled berating during walking and during functional activity, Huffing and coughing, forced expiratory technique, chest shaking, percussion and vibration, postural drainage
3. Exercise tolerance testing and exercise programme
4. Physiotherapy in Obstructive Lung Diseases
5. Physiotherapy in Restrictive lung disorders
6. Physiotherapy after Thoracic Surgeries
7. Physiotherapy in Rehabilitation after Myocardial Infarction
8. Principles of Intensive Care Physiotherapy:

- Knowledge of the following equipments: endotracheal tubes, tracheotomy tubes, Humidifier, Different Ventilators, Suction Pump, Electrocardiogram, Pressure monitors (arterial, central venous pressure), Pulmonary Wedge, intracranial and temperature monitors.
- Evaluation of the patient in the intensive care Unit including Glasgow Coma Scale
- Outline the history of mechanical Respiration, Define the terms: (a) Respirator (b) Lung Ventilator (c) Resuscitators (d) IPPB (e) PEEP (f) CPAP (g) SIMV.
- Outline the principles of Aerosol Therapy.
- Humidification therapy
- Describe techniques of sterile nasopharyngeal and endotracheal sectioning.

PHYSIOTHERAPY IN MEDICAL & SURGICAL CONDITIONS

1. Physiotherapy in general medical & surgical conditions: wounds, local infections, oedema, otitis Media, Sinusitis, pre and post-operative physiotherapy in abdominal surgeries, vestibular rehabilitation, burns and skin conditions
2. Physiotherapy in obstetrics & gynaecology: pregnancy, labour training, antenatal and post natal training, Complication of pregnancy, abdominal and pelvic floor muscles exercise, prolapse Uterus, pelvic Inflammatory Conditions, stress Incontinence
3. Geriatric Physiotherapy: examination and assessment of a geriatric patient, diet and nutritional requirement of the elderly, nutritional disorders and their management, falls in the elderly, dementia – types and principles of management, role of Physiotherapy in Hypertension and Diabetes, Musculoskeletal Cardio pulmonary and Neurological disorders in the elderly

DISABILITY & REHABILITATION

1. Conceptual framework of rehabilitation, roles of rehabilitation team members, definitions and various models of rehabilitation
2. Epidemiology of disability with emphasis on locomotor disability, its implications-individual, family, social, economic and the state
3. Preventive aspects of disability and organizational skills to manage it
4. Community based rehabilitation and outreach programme to rehabilitate persons with disabilities living in rural areas
5. Statutory previsions. Schemes of assistance to persons with disabilities
6. Principles of Orthotics & Prosthetics – types, indications, contra indications assessment (check out), uses and fitting – region wise
7. Commons disorders of speech & hearing – etiogenesis, clinical features assessment & principles of management
8. Principles of vocational problems, including evaluation & vocational goals for people with disability
9. Define, scope and importance of Activities of Daily Living (ADLs)
10. The teaching and training of (a) wheel chair activities (b) bed activities (c) transfer activities (d) locomotor activities (e) self-care activities, such as toilet, eating, dressing etc.
11. Architectural Barriers: Describe architectural barriers and possible modifications with reference to Rheumatoid Arthritis, CVA, Spinal Cord Injury and other disabling conditions
12. Principles of disability evaluation

LL.M.
Online Form No. 10

LL.M. (2 Years) (Punjabi University, Main Campus)
Student Intake: 30
Eligibility: LL.B. (3 yrs/ 5 yrs Programme) with 55% marks (50% in case of SC/ST) and eligible to enroll as an advocate separately.

LL.M. (One Year) Second Shift Classes (Punjabi University, Main Campus)
Student Intake: 30
Eligibility: LL.B. (3 yrs/ 5 yrs Programme) with 55% marks (50% in case of SC/ST) and eligible to enroll as an advocate separately.

LL.M. (One Year Programme) (Morning) (Punjabi University, Main Campus)
Student Intake: 35
Eligibility: LL.B. (3 yrs/ 5 yrs Programme) with 55% marks or LL.B. (2 yrs. Programme) with 55% marks (50% in case of SC/ST) and eligible to enroll as an advocate separately.

LL.M. (2 Years) (Punjabi University Regional Centre, Bathinda)
Student Intake: 20
Eligibility: LL.B. with 55% marks.

LL.M. (One Year) (Army institute of Law, Mohali)
Student Intake: 15*
Eligibility: LL.B. (3 yrs/ 5 yrs Programme) with 55% marks (50% in case of SC/ST)
Seat Distributions
Wards of Army Personnel -02, Punjab Residence Civil Category- 02, Seats for All India Civil Category-01 for details contact the Principle of the College.

The Punjab reservation policy will not be applicable to the 02 seats of Punjab Resident Civil Category.

The Admission to all above programmes will be on the basis of marks obtained in Entrance Test.

INSTRUCTIONS FOR CANDIDATES APPEARING IN LL.M ENTRANCE TEST

1. The question paper shall consist of **100 Multiple-Choice Questions (MCQs).**
2. Each question will have **four options (A, B, C, D)** with only one correct answer.
3. There will no negative marking.
4. Duration of the test will be **2 hours. No extra time will be provided.**
5. Qualifying marks in the Entrance Test are **10% for SC/ST/Persons with Disability (PWD) candidates and 15% for General and all other categories.**
6. **Admit Cards** for appearing in the Entrance Test will be available for download on https://pupadmissions.ac.in/ as per schedule. In case a candidate is not able to download Admit Card, kindly contact Centralized Admission Cell.
7. Candidates must check the **admission schedule and important dates on https://pupadmissions.ac.in/** regularly.
8. The candidates are strictly advised to **check the Eligibility Criteria#** mentioned in the Prospectus/ Handbook of Information **#(the Programme in which he/she is seeking admission)** before filling form.
9. Candidates must bring their **Admit Card to the Test Centre along with valid ID Proof.** Without Admit Card, candidates are not allowed to appear in the Entrance Test.
10. **Admission** will be offered on the basis of **merit in entrance test** provided candidate fulfils the basic eligibility criteria.
11. The Entrance Test result will be declared on https://pupadmissions.ac.in/

SYLLABUS FOR LL.M. ENTRANCE TEST-2026

Jurisprudence

Constitution of India

Bhartiya Nagrik Suraksha Sanhita 2023

Bhartiya Sakshya Adhiniyam

Bhartiya Naya Sahinta

Law of Contract

Law of Torts

Consumer Protection Law

Hindu Law

Muslim Law

Public International Law

Company Law

Law of Property

Environmental Law

Administrative Law

Human Rights

INSTRUCTIONS REGARDING OMR SHEET

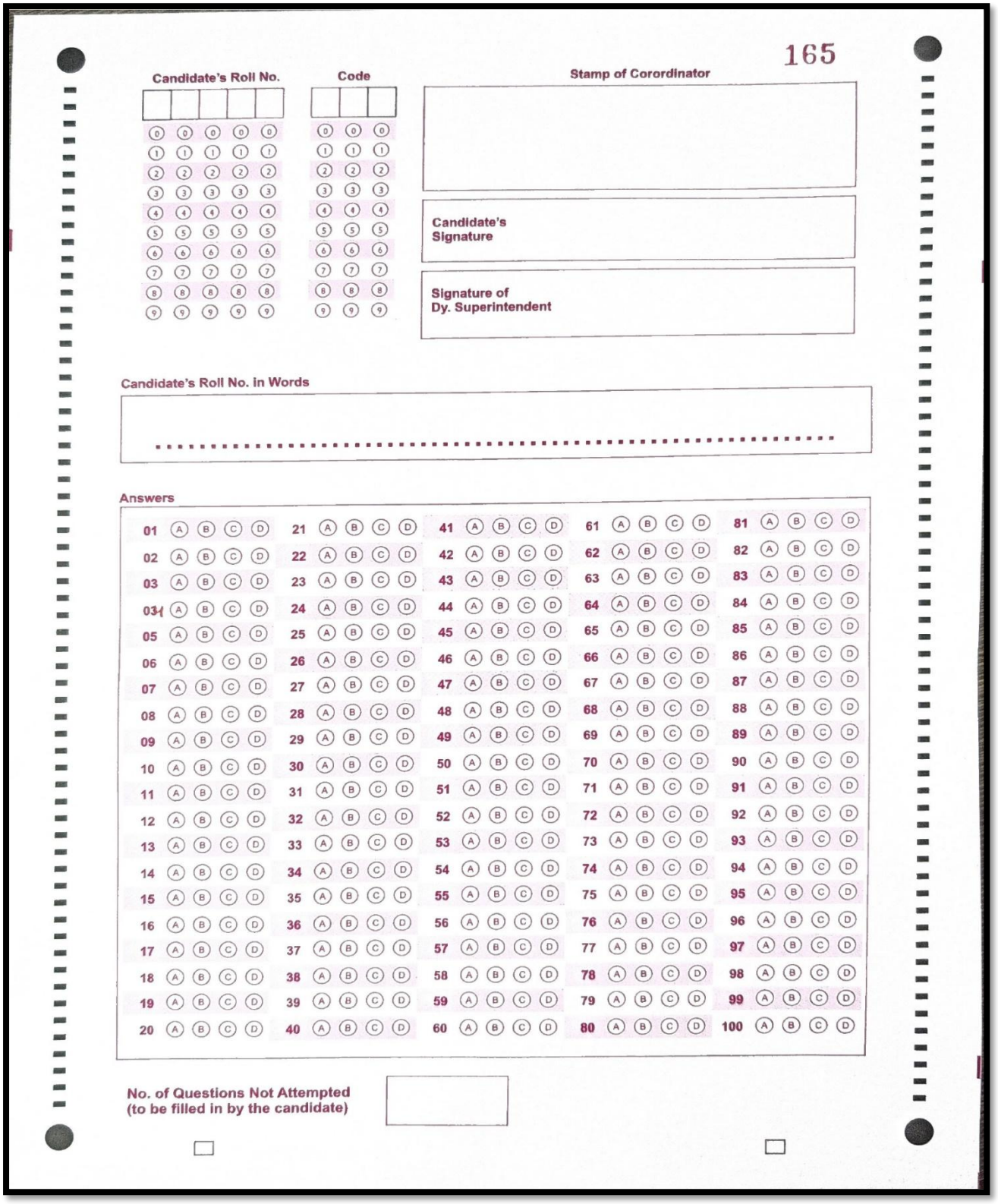
INSTRUCTIONS FOR THE CANDIDATES

1. A three-digit "CODE" is mentioned on the Question-Booklet. The candidate must fill this three-digit code in the OMR Response Sheet in the space provided for this purpose in figures and by shading circles.
2. On the OMR Response Sheet fill the Roll Number by shading circles. Also write Roll Number in figures and words at the appropriate space provided.
3. Ensure that Question-Booklet is complete and contains questions in sequence. In case of any discrepancy, inform the Centre Superintendent before attempting any question.
4. Candidate must sign only in the space provided for this purpose on the OMR response sheet.
5. If a candidate makes any identification mark or writes his/her Roll No. on the Question-Booklet/OMR Response Sheet (Except in the space provided for it), his/her OMR Response Sheet will be cancelled.
6. OMR Response Sheet is not to be folded or mutilated.
7. Total number of questions is 100. Each question carries *one* mark.
8. (a) There are four options (A), (B), (C) and (D) specified against each question. Out of these only one is correct.
   (b) In the OMR Sheet provided, there are four circles marked (A), (B), (C) and (D) against each question.
   (c) One and only one of the four circles is to be shaded by the candidate for marking the correct response. Shading of more than one circle will be treated as a wrong answer.
   (d) There will be *no negative marking*.
   (e) Candidate should shade the circle carefully and it should not touch other circles.
9. Candidate should use only Black/Blue Ball Pen/Gel Pen to shade the circle. Shading the circle with a Lead pencil will lead to cancellation of candidate's OMR Response Sheet. Use of an Eraser/White Fluid/Blade/Sticker to modify the filled response on the OMR Sheet is strictly prohibited. Such responses will be marked as wrong answers.
10. When filling in your answers on the OMR sheet, use only one ink colour (e.g., black or blue). Do not use multiple ink colours for marking your responses.
11. Rough work should only be done on the sheets provided at the end of the booklet.
12. Carrying and use of manual/electronic calculators, pagers, Bluetooth, mobile/cellular phones, smart watches and any other communication devices are strictly prohibited inside the Examination Hall.
13. At the end of the test, only OMR sheet should be handed over to the Deputy Superintendent.
14. The number of un-attempted questions must be written in the space provided at the bottom of the OMR sheet.
15. Any indiscipline will lead to the cancellation of candidature and the decision of the Centre Superintendent will be final.
16. How to shade a circle :

✔ CORRECT METHOD	✘ WRONG METHOD
● Ⓑ Ⓒ Ⓓ	⊘ ⊗ ⊖ ◐

.....
(*Signature of the Candidate*)

SAMPLE OF OMR SHEET



165

Candidate's Roll No.

Code

Stamp of Corordinator

Candidate's Signature

Signature of Dy. Superintendent

Candidate's Roll No. in Words

Answers

01	A B C D	21	A B C D	41	A B C D	61	A B C D	81	A B C D
02	A B C D	22	A B C D	42	A B C D	62	A B C D	82	A B C D
03	A B C D	23	A B C D	43	A B C D	63	A B C D	83	A B C D
04	A B C D	24	A B C D	44	A B C D	64	A B C D	84	A B C D
05	A B C D	25	A B C D	45	A B C D	65	A B C D	85	A B C D
06	A B C D	26	A B C D	46	A B C D	66	A B C D	86	A B C D
07	A B C D	27	A B C D	47	A B C D	67	A B C D	87	A B C D
08	A B C D	28	A B C D	48	A B C D	68	A B C D	88	A B C D
09	A B C D	29	A B C D	49	A B C D	69	A B C D	89	A B C D
10	A B C D	30	A B C D	50	A B C D	70	A B C D	90	A B C D
11	A B C D	31	A B C D	51	A B C D	71	A B C D	91	A B C D
12	A B C D	32	A B C D	52	A B C D	72	A B C D	92	A B C D
13	A B C D	33	A B C D	53	A B C D	73	A B C D	93	A B C D
14	A B C D	34	A B C D	54	A B C D	74	A B C D	94	A B C D
15	A B C D	35	A B C D	55	A B C D	75	A B C D	95	A B C D
16	A B C D	36	A B C D	56	A B C D	76	A B C D	96	A B C D
17	A B C D	37	A B C D	57	A B C D	77	A B C D	97	A B C D
18	A B C D	38	A B C D	58	A B C D	78	A B C D	98	A B C D
19	A B C D	39	A B C D	59	A B C D	79	A B C D	99	A B C D
20	A B C D	40	A B C D	60	A B C D	80	A B C D	100	A B C D

No. of Questions Not Attempted (to be filled in by the candidate)

FEE STRUCTURE

PROGRAMME NAME	1st Sem Fee*	2nd Sem Fee*
Bachelor of Pharmacy	44130	44125
B. Com. (Honors)	24645	24640
BCA (Honors with Research) On Campus Programme (3+1 Scheme)	33495	33495
FYIP MBA (FM / AM)	43895	43895
M.Com. (Honors School-FYIP)	24645	24640
MPT	74390	74390
LL.M. (Course Duration 2 Years)	10380	10380
LL.M. (Second Shift) (Course Duration 1 Year)	60875	60870

*** Note: -**

- **The fee structure given above is subject to change/revise as per the decision of the authorities.**
- For detailed information regarding the **Reservation Policy, Refund Policy, Admission Rules, Scholarships**, and other related matters, please refer to the **General Prospectus / Handbook of Information 2026–27**.
- **Please visit https://pupadmissions.ac.in/ for further details.**